A

SHORT ACCOUNT

OF

EXPERIMENTS MADE IN ITALY AND RECENTLY REPEATED IN GENEVA AND PARIS,

FOR PRESERVING HUMAN LIFE

AND

OBJECTS OF VALUE FROM

DESTRUCTION BY FIRE,

BY CHEV. ALDINI,

Honorary Member of the Royal Humane Society; of the Medical Society; and of Society of Arts and Manufactures of London. &c. &c.

ADDRESSED

TO THE HON. GEORGE AGAR ELLIS, M.P. F.R.S. AND
TO GEORGE BIRKBECK, M.D. F.G.S.

Members of the Committee of the Society for preventing loss of Life by Fire.

LONDON:

TO BE HAD OF P. ROLANDI, 20, BERNERS STREET;
J. RIDGEWAY, PICCADILLY; C. WILSON, PRINCES STREET;
BURGESS AND HILL, GREAT WINDMILL STREET;
A. CONSTABLE AND CO. EDINBURGH; AND SMITH
AND CO. GLASGOW.

1830.

Price 1*s.* 6*d.*

To London Medical Society
with Author's respectful com

LONDON:
PRINTED BY G. SCHULZE, 13, POLAND STREET.

A

SHORT ACCOUNT

OF

EXPERIMENTS FOR PRESERVING HUMAN LIFE FROM FIRE.

The kindness with which you have been pleased to receive the announcement of my last scientific endeavours, made in the cause of humanity, encourages me to request, that through the medium of your Society, you will promulgate to the British nation, so famed for its philantrophy, the utility and importance of my new methods of guarding against accidents by fire.

With this view I have the honor to submit to you the following summary account of my researches.

On examining steel coats of mail which the ancients employed in war, and considering whether they would not admit of some physical application, I became convinced that they had the

property of intercepting flame. I immediately conceived the notion of taking advantage of this circumstance for the protection of those engaged in extinguishing fires; and of forming an armour for them against the effects of that element. I found it easy to obviate the inconvenience of the weight of this new dress by substituting for the ancient coat of mail the wire gauze, in which the celebrated Davy had discovered the valuable property of giving security to the lives of miners. But a still greater difficulty soon presented itself. Coats of mail do indeed resist the direct action of flame as Davy had already observed with regard to wire gauze, but they do not, in an equal degree, intercept the passage of heat, nor prevent such an increase of temperature as hazards the safety of animal life. To remedy this defect I have been under the necessity of combining coats of mail with substances which do not conduct caloric; amongst which amianthus has hitherto appeared to me the substance most fitted for this purpose. By means of this double provision firemen become secured against the direct action of the flame, and of the no less serious influence of a high temperature.

To do away all doubt of the efficacy of my apparatus, I made trial of it for the first time in my laboratory at Milan, on the 5th of December 1827, before a municipal deputation and in the

presence of several members of the Institut and officers of Engineers, as well as the commander of the firemen and of those employed to make the experiment. An account of it was drawn up, the original of which was signed by the spectators, and deposited by the secretary of the Corporation among the city records.

It is there certified, that firemen clothed in this kind of armour, exposed with impunity their hands, their arms, their feet and even their faces to the flame of a wood fire, and that without suffering any injurious difficulty of respiration, or being sensible of more than a moderate increase of heat. They submitted to this proof for five minutes, that is to say, for a period which would in general be more than sufficient to rescue objects of value, and to carry into effect many very important operations. It is to be observed that in these experiments we employed gloves, boots and large caps with joints composed of metallic armour, combined in all cases with non-conductors of heat. Armed in this manner, firemen were seen to handle blazing wood and burning substances, and to walk during five additional minutes upon an iron grating placed over flaming faggots without thereby receiving any injury. It is thus perceived that my protecting apparatus is composed of two dresses, the one being a tissue of amianthus or

of wool rendered incombustible by means of a saline solution or by some other chemical process, and the other a metallic net work covering the former. This double dress is much lighter than an ancient coat of mail, and being better jointed it leaves the firemen sufficiently at liberty to act with promptitude.

Previously to exposing the firemen to the flames I had tried the experiment upon warm blooded animals placed in a cage, constructed according to my method, in order to assure myself that they could bear it without injury. I also made many experiments, with two kinds of apparatus of my own contrivance, the one for measuring the influence of heat on the human body placed at different distances from a flame, the other for ascertaining the same influence on bodies placed either perpendicularly or laterally, the flame being either at rest or in agitation.

The preliminary experiment above-mentioned was repeated at Pavia and afterwards again at Milan in the presence of the principal authorities as well as of his Imperial Highness the Prince Viceroy, after I had occupied a month in giving a complete course of instruction to all the corps of firemen.

Instead of making any theoretical application of my researches to the explanation of the physical laws of flame, I have applied them to much

more important objects, namely to a diminution of the evils attending fires, the preservation of the young, the aged or the sick, and the rescue of valuable property, and especially of papers, which may be of the greatest importance.

Under my direction two firemen passed through flames; the one bearing on his shoulders a basket containing a child whose head was covered with a cap lined with amianthus, the other carrying a kind of (porte-glass) a contrivance used abroad for supporting burthens on the back, with a seat on which was placed a man with a mantle properly prepared.

These experiments were repeated with the greatest success at Bologna and at Florence; where so much confidence was placed in my method, that among the firemen, fathers selected their own children to carry them through the flames, without ever experiencing the slightest inconvenience; and it was Mr. Grassi himself the Captain of the corps of firemen, who set the example of courage to his men by being the first to throw himself upon a large fire.

His Imperial and Royal Highness the Grand Duke of Tuscany honored my experiments with the greatest attention, and as a public testimony of his satisfaction, presented me with a rich gold snuff box, adorned with his cypher inscribed in brilliants.

The government of Geneva which had requested my apparatus, kindly afforded assistance in my experiment publicly made during three successive days in the presence of the Syndics of that city and of several Savans as well of the place itself as foreigners.*

In consequence of similar inquiries on the part of the French government, I went to Paris; and on the 20th of October, I performed my experiments at the barracks in the Rue de la Paix, in the presence of the Prefect of Police and of a commission from the Royal Academy of Sciences and from other scientific bodies. M. Guy-Lussac who was deputed to draw up a report of them, describes in the following terms the manner of passing through a body of flame 30 feet in length: "Two parallel hedges about "3 feet distant from each other were formed of "straw and brush wood supported by iron wires. "When these combustible materials were set "on fire, it was necessary to stand at a distance "of 8 or 10 paces to avoid the heat. The "mingled flames from both the hedges rose to "a height of at least 9 feet and seemed to fill "up the whole space between them. At this "moment six firemen, protected by Professor

* Professor Farady has given an abstract of these experiments accompanied by his observations, which is affixed to this account.

" Aldini's apparatus and following each other " at a slow pace, repeatedly passed through the " whole space, between the two flaming hedges, " which were kept constantly fed with addi- " tional combustibles. One of these persons " carried a child of eight years old in a wicker " basket covered by metallic gauze. The child " had no other protection than a mask of incom- " bustible material. This experiment which " those who performed it, made, not without " a feeling of dismay, was attended with the " most satisfactory results."

On this occasion several firemen protected by a glove of amianthus covered by another metallic glove, and even with a double glove of amianthus alone, carried large bars of red hot iron, whilst others exposed their heads armed with an amianthus mask and metallic cap, in the midst of a large brasier filled with flaming hay and wood. Thus resisting the action of the flame sometimes as much as five or six minutes.

On another occasion a fireman shewed peculiar address in repeating this experiment and resisted the action of the flames for about ten minutes.

It would not be possible to describe here the form of the different parts which make up the complete dress of a fireman. This will be done in my work exemplified in five plates, represent-

ing the structure and the dimensions of the various pieces which compose the apparatus.

I cannot however refrain from alluding to the shield, an instrument very easily managed and of the greatest utility. The shield is elliptical in form, made of a very light iron frame covered with iron wire gauze. It is of a convex form in order the more easily to turn the flames. In fact, these are made to take different directions at pleasure, and thus it is that the fireman is enabled to traverse them without danger.

A double iron gauze is also employed, which is carried under the arm rolled up, but may be spread and applied to the door of any apartment to prevent the passage of flames into the neighbouring chambers, and thus to arrest the progress of a fire. A shield of the largest size may in some cases be sufficient to enable the firemen to reach stairs which are on fire and to render them passable. In the country where the requisite provisions against fire are wanting, it would be well to be provided with one or two shields and to keep them in some place of safety, where they may be always at hand. The shield costs little, lasts long and is of the greatest possible utility. We ought not to regret any pains that we might take to introduce its employment.

It is now more than two years since my

methods were first tried of supporting for a time the action of flame without injury to the respiration. Every body asks how this flaming atmosphere can possibly be breathed. I might content myself with replying that such is the fact, for in this case the fact is far more important than the theories and explanations which are given of it. It is not out of place however here to state the curious observations of M. Duhamel and Tillet, which are given in a Mémoire written by the latter and inserted in the "Recueil de l'Académie des Sciences" at Paris. These two Academicians saw at Rochefoucauld the servants employed at a bake-house in that city, enter the oven immediately after the bread had been drawn, whether to arrange the wood for heating it again or to place dishes in it for the purpose of being cooked. Other circumstances which will be detailed in my work shew, that we must not be surprised at similar experiments which have been recently made, and that at all events it is a very different thing to resist a great heat without flame and to resist flame itself. My conjectures will also be found in my work respecting the power of breathing a highly heated atmosphere. These were delivered into the secretary's office, of the Imperial Institute of Milan, previous to my departure from Italy, and they will be found very analagous

to those proposed by M. Guy-Lussac, also to be inserted at the end of the same work.

It has been objected that the firemen would find it difficult to move freely in my apparatus, to which I should reply in the words of the report made by the commission of the Society of Encouragement at Paris, that "firemen "cloathed in this armour can run with moderate "speed, bend, kneel down, rise again, &c., with- "out experiencing much restraint, and conse- "quently thy could execute, in the midst of a "fire, such movements as might be required in "rendering the necessary assistance." The same commission recommends the use of Davy's safety lamp, adapted by me to domestic use. The Genevese artist Lariviere and professor Libri have endeavoured to accomplish this object; the first by covering the lamp with a finely perforated metallic plate, and the second by employing parallel iron wires placed vertically and bound together by horizontal wires. I also, without interfering with the original application of Davy's lamp, which is to prevent the combustion of inflammable gaz, have endeavoured to render it equally fitted for obviating the danger of fire in stables, granaries and private dwellings.

The commission above mentioned, has observed that my lamp may be placed on heaps of straw or hay, and even surrounded by them,

without communicating flame, though portions of these substances have penetrated the wire gauze, and taken fire in the interior of the lamp. I pretend not to have made any discovery in the safety lamp, that honour belongs to Sir H. Davy alone; but I am extremely anxious to give it a more extensive application than was contemplated by that illustrious philosopher, for having brought it to a great degree of simplicity, and consequently to a low price, it may be used generally in houses, granaries, warehouses and stables in the country, where conflagrations most frequently happen from the want of attention, or the culpable carelessness of servants and others in using common lamps.

Desiring to prove by facts, the preserving power of my new apparatus, I request any person having his finger covered with this amianthine gauze, and a double thickness of metallic gauze, to hold it in the flame of a candle, and he will be able to keep it there some minutes, without being in the least incommoded by the heat. Flannel prepared for this object, may be substituted for amianthine gauze, and the effects of heat will be equally counteracted for any given time. This remark is of great importance as it proves that my process may be put in practice, even before any general manufactory shall have been established for preparing the mineral. In

fact, the experiment has already been tried upon six firemen at Paris; all of whom had suits completely prepared, but four of them had masks of amianthus, and two of prepared flannel. However (as in a similar case, cited by Guy-Lussac) they all passed through the flames unhurt! yet in my opinion the amianthine mask should always be preferred; and the gloves also, used for carrying hot iron, should be amianthine.

This mineral must now be viewed in a light far different from that in which it was regarded by the ancients, when it cited curiosity, and flattered luxury; it ought now to attract universal attention solely for its utility. It being my intention before my departure, to establish a manufactory in London, I have endeavoured to procure this mineral from Scotland. The process of manufactory will be published in my work. The mines of *Piedmont* and *Valtellina* furnished materials for all the masks. The gloves, and all the other articles made use of at Geneva, and at Paris, I have preserved for the purpose of making experiment here. I have also got a piece of the amianthine cloth or gauze; and when its size is considered, may be regarded as the first piece manufactured, since the time of the ancient Romans, it is 9 feet 5 inches long, and 5 feet 3 inches wide; its dimensions being nearly equal to that preserved in the

library of the Vatican at Rome. My manufacture is much stronger than the ancient, having been woven without the introduction of any foreign substance. The various methods of application for protecting workmen, who are exposed to fire, from the effects of heat, will be fully explained in my work upon the subject. I am aware that in certain iron founderies about the neighbourhood of London, a mask of leather, furnished with a pipe, is employed to protect the face; but I flatter myself that in such cases my amianthine masks might be substituted in preference to any others.

Amianthus of a very good quality is to be found in the island of Corsica, in Piedmont, and in various parts of Italy; and, as the labours and researches of naturalists shall extend themselves, these mines will be added to those already known, and for so long a time, namely; in Crete, Cyprus, the Archipelago, among the Alps, in Great Britain, in Siberia, and in Egypt. No time therefore should be lost in awakening the national liberality by means of which this mineral may be employed in the protection, and preservation of society.

The difference of the system upon which assurancies are governed here, and upon the continent, oblige me to defer making my experiment in London. On the contrary, immediately

upon my arrival in Paris, the government referred me to the Director of the Firemen, a body of men consisting of six hundred soldiers, and I was thus at once enabled to give them instructions in my process. An Italian fireman, who always accompanies me in my travels, attended these men to encourage them, and set an example, by being the first to rush through the flames, when needful. The Préfecture de Police soon furnished funds sufficient to manufacture six complete suits for the firemen; and to defray the expenses attending experiments. With respect to the Assurance Companies in London, their position is widely different; here they are not dependent on government; and I have therefore just solicited some gentlemen, members of the committee of the new society entitled The Fire-Escape Company, to circulate the important results of my labour.

When in the year 1804, arrived in this metropolis to publish the discovery of my uncle Galvani, the favourable reception I then met, encourages me now in my present undertaking. I remember with pleasure that four Princes of the Royal Family, among whom was His present Majesty, were then present to witness my galvanic experiments upon dead animals, and upon the heads of oxen when separated from the body. Other experiments were also then exhi-

bited at the different anatomical theatres of London; among others at those of Guy's and St. Thomas's Hospitals before persons of the first rank and talent. The directions were kindly performed by Sir Astley Cooper, who, in the name of the students and professors attending both hospitals, presented me with a gold medal adorned with a highly flattering inscription.

After such marks of regard already received in London, although upon another account, I flatter myself that the different Assurance Companies will now, from motives of national philantrophy, assist me in propagating my process, by procuring me some convenient locality to instruct their firemen in the method of using the apparatus. The latter are of the same dimensions as those used upon the continent. It may be necessary to state here, that private gain, or personal emolument is not the object now aimed at. To introduce to the process I shall distribute tickets gratuitously to the members of the different companies, and to any person wishing to publish the discovery either in Great Britain or in the foreign dominions. I accordingly now again declare at London, as I did before His Exc. the English Ambassador Lord Bergersh, at Florence, when his excellency witnessed my experiments in that city, that I renounce all right and interest in my patent. A discovery which has for its object

the preservation of human life, should be free from every shackle; no difficulty should attend it, except that which is incidental to every new invention, until brought into universal practice.

The Assurance Companies will therefore without doubt, pay respect to that general spirit of benevolence inspired by nature for mutual protection! and this particular advantage must follow, that of having numerous articles which, without my apparatus, would have been lost at their expense.

I consider it as an invaluable service to Insurance Offices against fire, to be able to render immediate assistance to those who must otherwise perish; to put the firemen in a dress by which they may safely pass through the most violent flames, open and shut the doors, direct the pipes of the engines, and carry off valuable papers and other property. Men, thus armed against the raging element, might loose cattle, horses, &c. and drive them by force from their stalls, to which, in such cases, they cling for safety. Some pretend that dreadful conflagrations are less common now, than formerly. This is easily refuted. The town of Abo of which there remains only the vestiges of a few houses, is another melancholy example. Nor can we forget the dreadful conflagration which had nearly destroyed the celebrated capital of Scotland a

few years ago. The cases of Lyons and Dijon are still fresh in our memory, in which, a few months ago, a great many people and at least eight hundred animals, horses, cows, &c. perished in the flames. It is reckoned that, on an average, there is a fire every day through all the year of this vast capital. There is therefore unfortunately no want of occasion to employ with advantage the apparatus which I have proposed, and their utility will obviously be greatest in those countries in which wood is most employed in the construction of houses.

Prospectus of a Work which Chevalier Aldini proposes to publish in English, the title of which is:

" *The Art of preserving Firemen and Workmen* " *from the action of Flame, and of saving Human* " *Life in cases of Fire. With a Series of Experi-* " *ments performed in Italy, Geneva and in Paris,* " *with five plates.*"

INTRODUCTION.

CHAP. I. On the use of a coat of mail, of metallic gauze, combined with imperfect conductors of caloric.

II. Of the art of preparing amianthus, and of converting it into threads and cloths.

III. A new method of preserving firemen from the action of flame.

IV. Of the shield formed of metallic gauze to cut off and turn aside flame.

V. On the structure of gloves with which one may grasp bars of red hot iron, and also on the means by which one may pass over plates of iron heated to redness.

VI. Of the method of enveloping the head so that one may expose it to the action of flame and smoke without preventing respiration.

VII. Of the dress employed for passing through flame, and of the construction of different parts of the armour.

VIII. On the method of preserving persons and valuable property from fire.

IX. Historical notice of the principal experiments performed in Italy, with the armour and other kinds of apparatus.

X. Application of this method to the different arts to preserve workmen, &c. from the action of fire.

XI. Advantages which the preceding methods would give to Insurance Companies against losses by fire.

XII. General remarks on the causes of conflagrations, and on the means of preventing the disasters to which they give rise.

Extracts of the reports of learned Societies on the experiments made on firemen at Geneva and Paris.

Explanation of the plates with the description and dimensions of the apparatus.

Extract of Experiments of M. Aldini made by Professor Farady on Preservation of Firemen exposed to Flames.

The Chevalier Aldini of Bologna has been earnestly occupied in the construction of an apparatus, or rather clothing, intended to preserve persons from injury who are exposed to flames. The apparatus has lately been fully tried at Geneva, and an account of it, and the trials, given in the Bibliothéque Universelle. A union of the powers possessed by a metallic tissue to intercept flame, with the incombustible and badly conducting properties of amianthus, or other substances, has been made in the apparatus; and the latter consists of two distinct systems of clothing, the one near the body composed of the badly conducting incombustible matter, and the other, or external envelope, of a metallic tissue.

The pieces of clothing for the body, arms, and legs, are made of strong cloth which has been soaked in a solution of alum; those for the head, the hands, and the feet, of cloth of asbestos. That for the head is a large cap, which entirely covers the whole to the neck, and has apertures in it for the eyes, nose, and mouth, these being guarded by a very fine copper-wire gauze. The stockings and cap are single, but the gloves are double, for the purpose of giving power of handling inflamed or incandescent bodies.

M. Aldini has, by perseverance, been able to spin and weave asbestos without previously mixing it with other fibrous substances; the action of steam is essential in the bending and twisting of it, otherwise the fibres break. The cloths prepared with it were not of close texture, but loose: the threads were about one-fiftieth of an inch in diameter, and of considerable strength: cords of any size or strength may be prepared from them. M. Aldini hopes to be able so to prepare other fibrous matters, as to be able to dispense altogether with this rare and costly material.

The metallic defence consists of five principal pieces: a casque, or cap complete, with a mask: this is of such size as to allow of sufficient space between it and the asbestos cap, and is guarded before the face by a visor, so that the

protection is doubled in that part; a cuirass, with its brassets; a piece of armour for the waist and thighs; a pair of boots of double wire-gauze; and an oval shield, five feet long, and two and a half wide, formed by extending gauze over a thin frame of iron. The metallic gauze is of iron, and the intervals between the threads about one-twenty-fifth of an inch each.

When at Geneva, M. Aldini instructed the firemen in the defensive power of his arrangements, and then practised them, before he made the public experiments. He shewed them that a finger enveloped first in asbestos, and then in a double case of wire gauze, might be held in the flame of a spirit-lamp or candle for a long time, before inconvenient heat was felt; and then clothing them, gradually accustomed them to the fiercest flames.

The following are some of the public trials made. A fireman having his hand inclosed in a double asbestos glove, and guarded in the palm by a piece of asbestos cloth, laid hold of a large piece of red hot iron, carried it slowly to the distance of 150 feet, then set straw on fire by it, and immediately brought it back to the furnace. The hand was not at all injured in the experiment.

The second experiment related to the defence of the head, the eyes, and the lungs. The fireman put on only the asbestos and wire gauze cap, and the cuirass, and held the shield before his breast. A fire of shavings was then lighted, and sustained in a very large raised chaffing-dish, and the fireman approaching it, plunged his head into the middle of the flames, with his face towards the fuel, and in that way went several times round the chaffing-dish, and for a period above a minute in duration. The experiment was made several times, and those who made it said they suffered no oppression or inconvenience in the act of respiration.

The third experiment was with the complete apparatus. Two rows of faggots, mingled with straw, were arranged vertically against bars of iron, so as to form a passage between thirty feet long, and six feet wide. Four such arrangements were made, differing in the proportion of wood and straw, and one was with straw alone. Fire was then applied to one of these double piles; and a fireman, invested in the defensive clothing, and guarded by the shield, entered between the double hedge of flames, and

traversed the alley several times. The flames rose ten feet in height, and joined over his head. Each passage was made slowly, and occupied from twelve to fifteen seconds; they were repeated six or eight times, and even oftener, in succession, and the firemen were exposed to the almost constant action of the flames for the period of a minute and a half, or two minutes, and even more.

When the course was made between the double range of faggots without straw, the fireman carried a kind of pannier on his back, prepared in such a way as to be fire-proof, in which was placed a child, with its head covered by an asbestos bonnet, and additionally protected by the wire-gauze shield.

Four firemen made these experiments, and they agreed in saying, that they felt no difficulty in respiring. A very abundant perspiration came on in consequence of the high temperance to which they had been exposed, but no lesion of the skin took place except in one instance, where the man had neglected to secure his neck by fastening the asbestos mask to the body dress.

No one present could resist the striking evidence of defence afforded when they saw the armed man traversing the undulating flames, frequently hidden altogether from view by them as they gathered around him.

The fact that in M. Aldini's apparatus a man may respire in the middle of the flames is very remarkable. It has often been proved, by anatomical examination, that in cases of fire many persons have died altogether from lesions of the organs of respiration. It would appear that the triple metallic tissue takes so much of the caloric from the air as it passes to the lungs, as to render its temperature supportable; and it is known, by experiments in furnaces, that a man can respire air at 120 or 130° C. and even higher. Perhaps also the lesions referred to may have been due to aqueous vapour, which is often produced in great abundance in fires where endeavours are made to extinguish them by water, for such vapour would transfer far more heat to the lungs than mere air. Hence in every case, and however guarded, firemen should enter houses in flames with great prudence, because the circumstances are not the same as in the experiments just described.

It is remarked that several suits of this defensive cloth-

ing should be provided, not to clothe many persons at once, but that, in endeavouring to save persons or valuable things in cases of fire, the fireman should not approach again and again in heated clothing, but have a change at hand. The Grand Duke of Tuscany has ordered six suits for the city of Florence.

M. Aldini shewed several experiments relative to the extinguishing power of his preparations before the Société de Physique de Genève. One consisted in placing an asbestos cloth of loose texture over a flame either of wax or alcohol; the flame was intercepted as well as it could have been by a piece of wire gauze. This experiment is supposed to favour the objections made to Sir H. Davy's explication of the theory of the wire gauze safety-lamp; but there seems to be a mistake in the idea which has been taken of that theory. Sir H. Davy never explained the effect of his lamp by absorption of heat from flame dependant upon the good conducting power of the tissue alone, but by the joint action of absorption and radiation. There is no doubt that cloth of asbestos is an admirable radiator, and that this power, with its conduction, is probably sufficient to explain the effects upon Sir H. Davy's theory.—xli. p. 333.

London: Printed by G. Schulze, 13, Poland Street.

It has been inferred, from its being reported I refused to answer, that I was afraid to answer; but if you had said, that I had declined so doing on the caution given me by the court, that unfavourable construction would have been avoided.

It is a most serious and appalling thing to a medical man to be compelled to give evidence on such inquiries, and be subjected to an advocate's misrepresentations, exaggerations, and invectives, because the witness knows he has no opportunity of replying, and yet is conscious that ruin to his reputation may be the consequence. But if he find that the newspapers, the media through which such proceedings are circulated, instead of adhering to the facts and statements made by the witness, omit parts, alter others, or give a different colouring to what he deposed, he feels that the mischief may be irreparable.

I am quite satisfied, Sir, that, although it is evident, from the observations you occasionally make on the subject of insanity, and the care and management of the insane, you entertain some peculiar views—perhaps, I may justly say, strong prejudices—yet you mean nothing personal; and that you believe the reports which have appeared in "The Times" lately, of proceedings in cases of lunacy wherein I have been concerned, are true and faithful. Unhappily for my peace of mind and prosperity, I know them, and could and will, if you wish, prove by authenticated vouchers the very reverse.

Independently of the instances to which I allude, and those I have cited, I must be permitted to give a more recent example where, in reporting my evidence, injustice has been done me. In "The Times" of January the 22d ult. the Attorney-General, in the cause Barker *v.* Field, was pleased to pay a compliment to my experience and knowledge evinced at other trials where he had met me: he then said, what you have reported, that "He had no reason to complain of the evidence of Dr. Burrows;" and he added, that "he thought it had been given with great fairness and modesty." The introductory and concluding observations of the Attorney-General are wholly omitted in "The Times." The "Morning Herald" retains the latter part of the sentence.

From all these circumstances combined, I cannot avoid suspecting that the gentleman who reports legal proceedings for "The Times" may entertain some unfortunate prejudice against me; and hence the *ex-parte*, garbled, and erroneous reports wherever my name or conduct is implicated.

I confess my own fallibility, that I may err in judgment, and,

consequently, commit mistakes; but I am quite unconscious, in a practice of thirty-six years in this metropolis, of having done any thing intentionally wrong, or having deserved public reprobation.

In the peculiar branch of the profession I exercise I have made the most unremitting exertions, both personal and pecuniary, to extend the knowledge of insanity as a human disease, and to introduce every improvement that modern science has discovered in its treatment.

For the general truth of this statement, I refer you to the profession at large; for a particular instance, I refer you to the proprietors of "The Times" themselves, in the case of ————, who was four years under my care, and in my establishment.*

I ask you, Sir, neither for your favour nor your support: I merely appeal to you, as a gentleman, for candour and feeling for a professional man; and, as the editor of the most powerful and influential journal, for impartiality in reporting all that relates to the conduct and opinions of,

Sir, your obedient humble servant,

G. Man Burrows.

To the Editor of "The Times."

No. IX.

10, *Montague Street, January* 18, 1830.

My Lord,

In compliance with your Lordship's request, as signified in Mr. Lowdham's letter of the 4th instant, I have the honour to enclose the returns of the lunatics who have been admitted into Clapham Retreat since it was opened in 1823.

I had a similar establishment before, at Chelsea, but the register there was not kept in a manner sufficiently regular to be relied upon.

The points to which it appears I am directed are,—

* This patient was placed in my house by the Proprietors of "The Times," and continued there three years; when, being much improved, her family wished to take her home; but she refused to go away, and remained nearly another year; and then, being still more improved, she reluctantly went home.—*G. M. B.*

First, to distinguish paupers from other patients.

I have never admitted paupers into either of my houses.

Second, to separate the patients into "curable" and "incurable."

In the Table No. 1, of the 188 admitted, 175 may be considered "curable," and 13 as "incurable." Of the latter, some are dead, some removed, and two or three are now in the house; but none have recovered. Indeed, I do not expect any of those to recover whom I class as incurable; because I never pronounce any one to be so, except there is evidence of some organic defect or disease of the brain.

In arranging my patients, I prefer dividing them into "quiet," "noisy," and "offensive or dirty," to "curable" and "incurable." The medical division I adopt is, "old cases" and "recent cases." In the first, I suppose the malady, generally, to be in the passive state; in the second, still in the active; and corresponding with either state will be the proportion of recoveries.

In the same Table I have given the number of patients annually *cured* of the number admitted in the corresponding year.

Third, to state the number of patients sufficiently relieved to be restored to their liberty.

Of those *not* cured, and removed from Clapham Retreat, who amount to 58, 21 were so far improved as to return to their families. What degree of liberty they were afterwards allowed cannot be determined. Many of them, no doubt, as well as of those removed home *unimproved*, and of those *improved* and *unimproved* removed to other asylums, ultimately recovered.

Fourth, to state the duration of the malady.

In Table No. 2, the time the malady continued after the patient was admitted is marked, in months for the first year, and afterwards by years; and the number both of "old" and "recent" cases that recovered in each period is inserted.

This Table strikingly illustrates the success attending the early application of the means of cure in cases of insanity; for it will be noted, that of the 55 recent cases cured, 34 recovered within three months from the date of admission.

If your Lordship will refer to the printed minutes of the Committee of Peers in 1828, on the bill for regulating the care of the insane, it will be seen that, in a degree, I have anticipated your Lordship's wishes, in an abstract I presented from the register of Clapham Retreat. It embraces most of the points adverted to in Mr. Lowdham's letter.

I have repeatedly invited the proprietors of private asylums to keep correct registers, and publish similar reports, in order to elucidate the question often raised, of the proportion of lunatics who recover compared with the number admitted into such establishments.

Perhaps no useful general inference can be derived from the result of a small establishment like mine. I do not refer to it with that view. But, as far as it goes, I hope it will be esteemed satisfactory.

For information, on an extended scale, of the average number of insane persons who, in the present state of medical science, obtain relief in public asylums, I can with confidence refer your Lordship to the comparative table of cures printed in the minutes of the Lords' Committee. For, although the calculations therein were made upon the reports sent me up to 1819-20, yet, in 1828, I renewed my inquiries, and again collected and examined the annual reports of the different public asylums; and, upon collating them, I found the returns of admissions, cures, &c. to vary from the former in so trifling a degree, that scarcely any alterations were required in the numerical proportions of the table.

Induced by some remarks which fell from Mr. Lowdham, a few days since, in conversation, respecting the proportion of recoveries among lunatics under the protection of the great seal, I have since examined the list of those who have come under my cognizance. I find one only, a Miss ——, reported to me as having recovered after a commission. But I must here take the liberty to remark, that I believe every one of those cases was a chronic case,—that is, of so long standing as to render recovery very improbable.

I trust your Lordship will not deem me impertinent for accompanying the returns with these observations. I have no desire but to assist in rendering your Lordship's inquiries efficient.

I have the honour to be, my Lord,

Your Lordship's obedient humble servant,

G. Man Burrows.

To the Right Honourable the Lord Chancellor.

Table 1.

General Result of 188 *Cases of Insanity, curable and incurable, admitted into Clapham Retreat at its opening, Michaelmas* 1823, *and in each successive year to Christmas* 1829.

No. admitted.	Year.	Old, or Cases of more than Three Months' duration.					Recent, or Cases of less than Three Months' duration.				
		Cured.	Uncured	Incurable.	Died.	Total.	Cured.	Uncured	Incurable.	Died.	Total.
15	1823	2	3	1	1	7	4	1	1	2	8
39	1824	10	4	3	1	18	12	4	1	2	19
26	1825	4	4	1	3	12	9	2	–	2	13
25	1826	4	6	1	1	12	8	3	–	2	13
31	1827	7	8	1	1	17	9	3	1	1	14
26	1828	4	9	2	–	15	8	2	–	1	17
26	1829	1	9	–	2	12	5	10	1	1	17
188		32	43	9	9	93	55	25	4	11	95

Of the 188 Patients admitted, there were— { Old cases..... 93 / Recent cases ... 95

Removed to other asylums—Improved 19
Not improved 10
Removed home—Improved 21
Not improved 8
Died 20
Cured 87
Remain in the house December 31, 1829, of whom 11 were admitted within the last year } 23
——188

Removed before the means of recovery were completed 58
Incurable 13
Died (9 of whom had not been admitted one month) . 20
—— 91

The proportion *cured* of the total number admitted is about half.

Of the 188 admitted, there were 58 removed before the means of recovery had been sufficiently tried, and 13 incurable, making a total of 71. The actual number, therefore, upon which a calculation of the *cured* ought to be made is 117. 87 cured of 117 will make the proportion of recoveries about 3 in 4.

Table 2.

An Account of the Duration of Mental Derangement in Persons who have been admitted into Clapham Retreat, within seven years, and have recovered.

Duration from the day of admission.	Old, or Cases more than three months' standing when admitted.	Recent, or Cases less than three months' standing when admitted.	Total.
1 Month	2	13	15
2 Months.....	4	10	14
3 Months.....	4	11	15
4 Months.....	5	7	12
5 Months.....	2	–	2
6 Months	2	3	5
7 Months.....	2	3	5
8 Months.....	–	–	–
9 Months.....	1	1	2
10 Months.....	–	2	2
11 Months.....	–	–	–
12 Months.....	2	–	2
2 Years	3	2	5
3 Years	3	3	6
4 Years	1	–	1
5 Years	1	–	1
6 Years	–	–	–
7 Years	–	–	–
Total	32	55	87

I hereby certify the above to be a faithful Abstract from the Register of Clapham Retreat, January 16, 1830.

W. H. Pollard, Superintendent.

Signed,

G. M. Burrows, M.D.